

AD659407

Geophysical Data Report

**GEO MAGNETIC DATA
BANGKOK, THAILAND - JANUARY-
MARCH 1966**

By: DOUGLAS J. BARNES JOHN CHAPMAN

Prepared for:

U.S. ARMY ELECTRONICS COMMAND
FORT MONMOUTH, NEW JERSEY 07703

CONTRACT DA-36-039 AMC-00040(E)
ORDER NO. 5384-PM-63-91

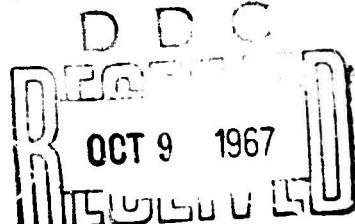
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I INTRODUCTION

Geomagnetic observations are being carried out at the Electronics Laboratory of the Military Research and Development Center (MRDC), a joint Thailand-United States organization at Bangkok, Thailand. The cooperation and participation of the staff members of the Thailand Ministry of Defense and the support of the United States Advanced Research Projects Agency and the United States Army Electronics Laboratory have made it possible for the data presented in this report to be accumulated.

The information about the site in Table I is pertinent.

Table I
GEOMAGNETIC SITE AT BANGKOK, THAILAND

Geographic		Geomagnetic		DIP*	Declination*
Latitude	Longitude	Latitude	Longitude		
13.72°N	100.57°E	2.5°N	169.83°E	10°27'N	0°10'W

The equipment at the site consists of the following:

Instrument: Varian V-4938A Rubidium Magnetometer

Full-Scale Sensitivity: 100γ (10⁵γ = 1 gauss)

Chart Speed: One inch per hour

Time Scale: Local time GMT + 7 hours

Range: Step-Variable, in 90γ increments

*Values obtained from the Geodesy Department, Ministry of Defense, Bangkok, Thailand.

II DISCUSSION

The data contained in this Bulletin are obtained with a Varian V-4938A rubidium magnetometer. The data base is available in two forms: (1) the continuous magnetogram recording and (2) a digital printout every 2 minutes, both measuring the total geomagnetic field intensity (F).

The hourly mean values of the total geomagnetic field intensity are given in Tables II through IV and are obtained by calculation from the digital data. The tabulation is for local mean time (GMT + 7 hours). The monthly mean values vs. local time of day are given in the bottom line of the tables and plotted in Figs. 1 through 3.

The Varian chart recorder used with the V-4938A magnetometer has an automatic range-changing system that shifts the range of the recording by 90 γ when either chart extremity is reached. In Fig. 4 et seq. the range of F shown at the left of the chart is for the beginning of the day.

Magnetograms with a mean local time scale (GMT + 7 hours), showing disturbed days are given as follows:

- (1) Figures 4 through 6--the three most disturbed days of the month.
- (2) Figure 7--other days of interest--e.g., those showing a sudden commencement, or highly disturbed ($k_p \geq 5$).

TABLE II
MEAN HOURLY TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK ----- JANUARY, 1956

Hour	Mean Hourly Total Geomagnetic Field Intensity (F) at Bangkok																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	780	785	785	785	784	784	794	784	786	792	803	812	818	818	815	808	800	798	796	795	790	791	790	790	
2	787	787	791	792	792	792	792	792	793	793	796	798	801	806	807	798	788	786	786	787	785	781	781	784	
3	789	786	786	797	797	798	798	793	793	796	796	801	806	806	807	798	788	786	786	787	785	781	781	784	
4	782	782	784	782	782	782	782	782	786	796	806	813	817	817	807	797	792	768	784	789	797	798	791	787	
5	782	782	770	770	785	775	775	775	780	793	805	810	807	794	787	781	778	777	776	774	776	777	778	778	
6	780	780	780	779	779	778	789	783	879	798	808	819	826	820	806	-	-	-	-	-	-	-	-	788	
7	784	784	790	788	790	790	791	792	797	807	817	820	825	815	799	787	782	779	779	777	777	782	784	796	
8	791	742	768	768	770	770	774	778	775	785	800	810	817	813	807	-	781	781	784	786	783	783	773	774	
9	776	781	783	780	780	780	787	795	794	804	-	-	-	-	-	-	-	791	784	788	787	790	788	765	
10	771	772	777	776	780	780	782	782	791	810	812	-	-	807	804	785	784	783	783	784	783	781	782	780	
11	780	777	777	774	784	784	781	778	798	817	827	833	825	815	803	794	789	788	788	787	787	785	781	786	
12	788	789	788	786	787	787	787	787	790	792	799	804	812	814	810	800	790	788	787	787	786	786	785	790	
13	793	793	793	793	795	795	797	797	795	796	796	802	814	824	828	820	810	805	800	798	798	793	788	786	
14	791	793	793	794	795	795	795	794	791	796	803	817	825	823	818	824	822	-	804	799	801	800	792	778	782
15	787	790	791	791	789	789	791	788	792	798	810	813	808	803	796	793	793	793	791	791	791	789	784	793	791
16	794	793	791	791	793	795	795	795	795	796	801	813	815	814	806	800	796	793	793	792	791	790	789	788	
17	790	791	792	794	796	795	795	798	795	798	808	816	821	819	815	803	797	796	796	794	790	789	790	795	
18	798	798	801	803	803	804	809	811	820	820	833	842	836	837	832	824	815	814	816	808	814	810	800	788	
19	769	773	767	767	782	787	792	798	804	814	819	822	821	821	810	802	799	795	785	781	784	781	779	783	
20	789	787	790	794	798	800	804	802	803	832	835	825	842	842	824	805	810	803	786	783	771	759	731	722	
21	758	752	755	781	781	778	778	779	779	779	780	787	797	785	773	781	813	792	794	782	750	761	766	757	753
22	760	783	782	776	775	775	766	773	773	788	802	810	824	829	804	804	799	777	764	757	747	761	750	754	
23	756	757	760	760	764	770	768	767	767	768	773	785	795	763	774	769	765	753	754	753	739	751	769	767	
24	768	766	774	771	770	770	774	777	782	795	807	826	821	812	802	788	767	753	755	766	772	773	771	782	
25	785	775	774	774	775	780	774	782	782	787	788	792	789	774	776	776	774	779	775	768	767	768	783	783	
26	775	771	773	774	774	780	784	789	794	806	813	817	812	791	778	776	775	772	769	767	767	767	767	788	
27	774	786	773	773	772	777	780	780	789	794	805	806	805	796	791	786	763	778	777	776	774	774	774	776	
28	775	775	777	778	779	779	779	779	783	789	802	801	791	794	794	795	785	787	790	788	792	795	796		
29	801	791	800	815	818	802	794	807	821	824	842	844	830	831	819	812	791	775	769	771	772	776	774	774	
30	781	785	786	788	789	791	794	797	800	803	803	804	805	803	801	798	801	802	795	788	779	777	772		
31	775	776	781	782	783	783	786	793	797	803	806	802	798	793	788	785	778	780	781	782	782	782	782		
Mean	781	782	783	784	785	786	787	794	797	806	813	817	813	810	794	789	789	782	781	779	778	779	779		

* LOCAL TIME = GMT + 7 HOURS.

TABULATED VALUES ARE THE LAST THREE DIGITS ONLY OF THE TOTAL FIELD STRENGTH (F) IN γ ADD 4,000
TO OBTAIN TOTAL FIELD STRENGTH IN γ

DECEMBER 1955

TABLE III
MEAN HOURLY TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK --- FEBRUARY, 1966

Day	Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	784	789	791	789	789	792	793	795	797	803	812	816	818	814	809	802	796	721	720	785	784	784	787	789	
2	788	789	790	792	791	792	792	794	801	805	817	826	825	822	820	815	805	-	-	-	-	-	-	-	
3	-	-	-	-	-	-	-	-	-	-	811	818	816	802	783	778	781	785	786	784	781	773	778	781	
4	779	785	777	769	781	776	778	787	804	812	816	808	806	799	784	773	763	764	761	768	765	769	782	780	
5	778	781	782	787	787	782	783	786	788	791	800	807	796	791	780	773	766	764	761	759	757	760	753	749	
6	749	754	759	778	778	782	780	780	784	785	784	776	770	765	765	767	771	774	772	776	771	774	774	775	
7	774	777	780	781	782	781	784	785	792	796	795	796	794	797	790	788	786	782	781	781	780	780	782	781	
8	780	781	782	781	782	781	782	781	787	798	810	819	819	817	804	793	789	787	784	791	792	789	769	766	
9	773	780	782	782	780	783	785	788	790	811	818	824	823	818	809	802	803	800	795	792	794	792	780	780	
10	791	790	792	790	792	795	796	804	823	840	853	848	832	824	813	800	801	744	800	800	744	800	744	741	
11	794	786	781	780	778	780	787	795	824	819	833	835	829	819	814	801	744	740	774	773	768	762	772	782	
12	782	778	782	782	778	778	782	785	795	814	830	826	810	796	777	773	772	778	779	780	780	782	782	782	
13	783	784	784	785	785	784	783	782	784	791	791	797	807	811	814	806	803	792	787	784	779	781	779	780	
14	788	786	783	786	786	787	787	790	784	798	807	815	821	817	809	823	797	793	788	786	786	785	783	782	
15	787	785	786	786	786	789	789	784	791	793	800	814	827	834	842	835	825	818	811	808	805	743	783	789	
16	793	793	790	783	790	789	793	795	803	808	805	804	798	783	778	776	778	782	784	785	790	786	789	780	787
17	788	787	787	789	790	790	795	813	814	827	832	830	829	824	820	809	805	801	797	797	793	787	786	785	785
18	783	781	784	795	796	793	798	811	822	834	838	835	826	806	795	789	780	767	787	787	787	786	787	787	
19	784	789	791	791	794	796	799	810	829	847	853	840	814	802	803	802	802	804	793	782	765	736	714	-	
20	745	752	754	777	772	764	767	775	790	806	816	811	789	778	773	765	754	742	750	751	756	752	763	-	
21	770	771	770	772	772	773	777	787	798	815	814	807	799	792	786	784	777	774	773	774	775	774	775	-	
22	774	777	776	777	779	781	784	791	802	813	825	832	826	815	800	785	784	791	782	757	751	776	769	753	
23	767	776	780	769	770	768	770	778	789	809	816	793	761	753	734	-	-	-	-	-	-	-	-	-	
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	764	774	786	777	773	771	772	784	798	810	817	815	805	79	786	782	781	776	764	767	775	768	-	-	
26	781	779	776	776	777	777	777	782	792	806	815	815	805	800	788	-	-	-	-	-	-	-	-	-	
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
31	779	780	781	782	783	783	785	792	801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mean	778.6	780.2	781.0	782.2	783.1	782.7	785.7	790.8	800.8	812.1	820.8	820.8	811.3	801.7	792.1	790.8	785.1	782.1	780.7	777.7	776.7	775.5	-	-	

* LOCAL TIME = GMT + 7 HOURS

TABULATED VALUES ARE THE LAST THREE DIGITS ONLY OF THE TOTAL FIELD STRENGTH (F) IN γ
TO OBTAIN TOTAL FIELD STRENGTH IN γ ADD 41,000

TABLE IV
MEAN HOURLY TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK - - - - MARCH, 1966

DAY	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2	789	789	787	787	788	788	789	793	802	816	829	839	830	819	804	794	792	741	790	797	794	791	790	787	786	
3	7 ⁴	787	789	798	792	795	796	797	809	821	821	823	822	823	821	814	805	790	762	778	778	793	791	790	788	786
4	788	785	780	776	771	773	777	779	798	816	828	816	813	802	793	782	780	785	783	778	779	780	778	779	780	780
5	777	779	779	775	780	785	777	792	802	814	826	824	810	795	778	776	777	779	777	776	778	780	780	776	778	780
6	779	778	776	777	782	781	782	790	810	826	836	840	835	-	-	-	-	-	-	-	-	-	-	-	-	
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
8	-	-	-	-	-	-	-	-	-	814	828	838	839	831	819	823	816	807	803	799	798	795	792	789		
9	789	790	789	790	791	793	793	795	801	816	830	834	835	831	822	810	800	793	793	803	800	792	794	786	788	
10	790	793	790	783	787	777	771	769	779	794	819	825	824	818	805	790	781	741	780	781	771	766	774	774	777	
11	779	780	781	782	782	783	785	790	802	822	833	835	826	814	804	794	786	784	787	784	785	786	785	787	787	
12	783	783	785	783	779	778	781	792	811	824	832	827	814	799	784	773	772	767	771	766	770	772	770	770	770	
13	775	780	783	786	788	790	790	794	803	816	833	831	828	823	808	806	794	790	790	789	795	777	777	777		
14	774	766	768	768	758	770	765	730	734	725	717	713	687	678	658	645	639	646	678	685	685	685	720	702	720	
15	731	734	742	744	748	749	755	767	781	794	800	805	804	794	777	762	753	750	753	758	768	767	762	756	756	
16	757	756	759	757	762	768	770	782	803	815	815	811	799	790	783	775	766	761	759	760	756	757	760	763	763	
17	764	764	763	764	763	764	763	764	775	793	811	823	813	818	806	793	785	778	778	779	777	773	764	765	774	
18	776	775	779	782	777	776	775	780	771	802	821	824	814	806	793	785	779	774	774	775	772	773	772	772	771	
19	772	777	778	780	781	783	793	804	822	851	860	866	859	841	817	793	778	774	774	756	756	748	760	777	766	
20	762	775	780	773	773	778	781	781	786	786	804	810	806	798	789	780	775	772	775	775	773	774	767	780	780	
21	773	769	774	775	772	772	774	781	795	815	817	828	822	803	800	788	784	780	781	780	777	777	773	770	770	
22	773	772	777	776	770	768	773	774	789	807	816	824	816	811	798	776	777	777	777	780	772	781	786	790	791	
23	786	784	783	788	784	775	782	790	810	831	845	847	834	810	782	742	695	680	718	683	715	677	660	670	670	
24	652	683	693	698	698	701	709	724	745	775	770	768	764	750	741	735	734	737	737	736	737	738	739	738	738	
25	741	743	745	748	751	747	752	755	778	798	811	824	815	805	790	780	777	779	772	768	771	765	762	774	774	
26	776	762	772	776	768	774	767	776	795	816	826	843	824	814	808	800	797	792	798	776	771	771	771	770	757	755
27	754	769	750	764	769	774	775	774	779	792	800	806	798	763	759	766	770	767	760	755	753	757	769	759	759	
28	762	764	768	775	774	775	771	774	782	794	807	813	806	779	760	750	730	707	697	700	709	725	780	756	756	
29	742	722	734	760	756	741	740	746	762	781	779	766	770	754	745	750	752	750	754	757	758	762	762	762	762	
30	762	764	765	763	762	764	765	764	777	794	799	793	790	781	775	769	767	768	771	771	767	765	761	768	768	
31	764	764	764	765	772	772	771	773	784	804	816	818	810	795	781	774	766	755	756	760	762	764	766	766	766	
Mean	766	767	770	772	771	771	772	778	796	808	816	814	814	814	797	784	774	764	764	766	763	764	763	763	766	

* LOCAL TIME = GMT + 7 HOURS.

** TABULATED VALUES ARE THE LAST THREE DIGITS ONLY OF THE TOTAL FIELD STRENGTH (F) IN Y.

TO OBTAIN TOTAL FIELD STRENGTH IN Y ADD 41,000

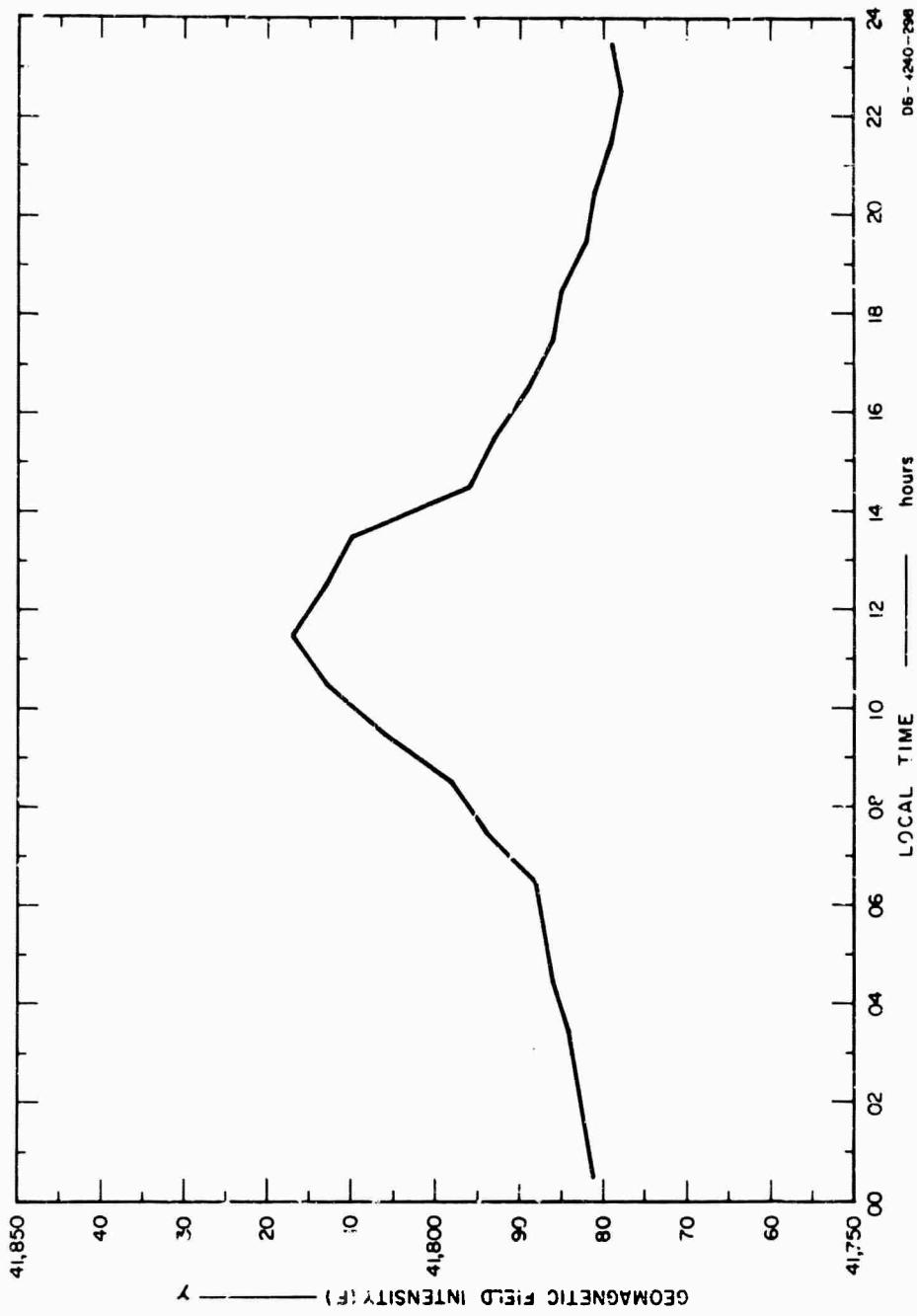


FIG. 1 MONTHLY MEAN TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK —
JANUARY 1966

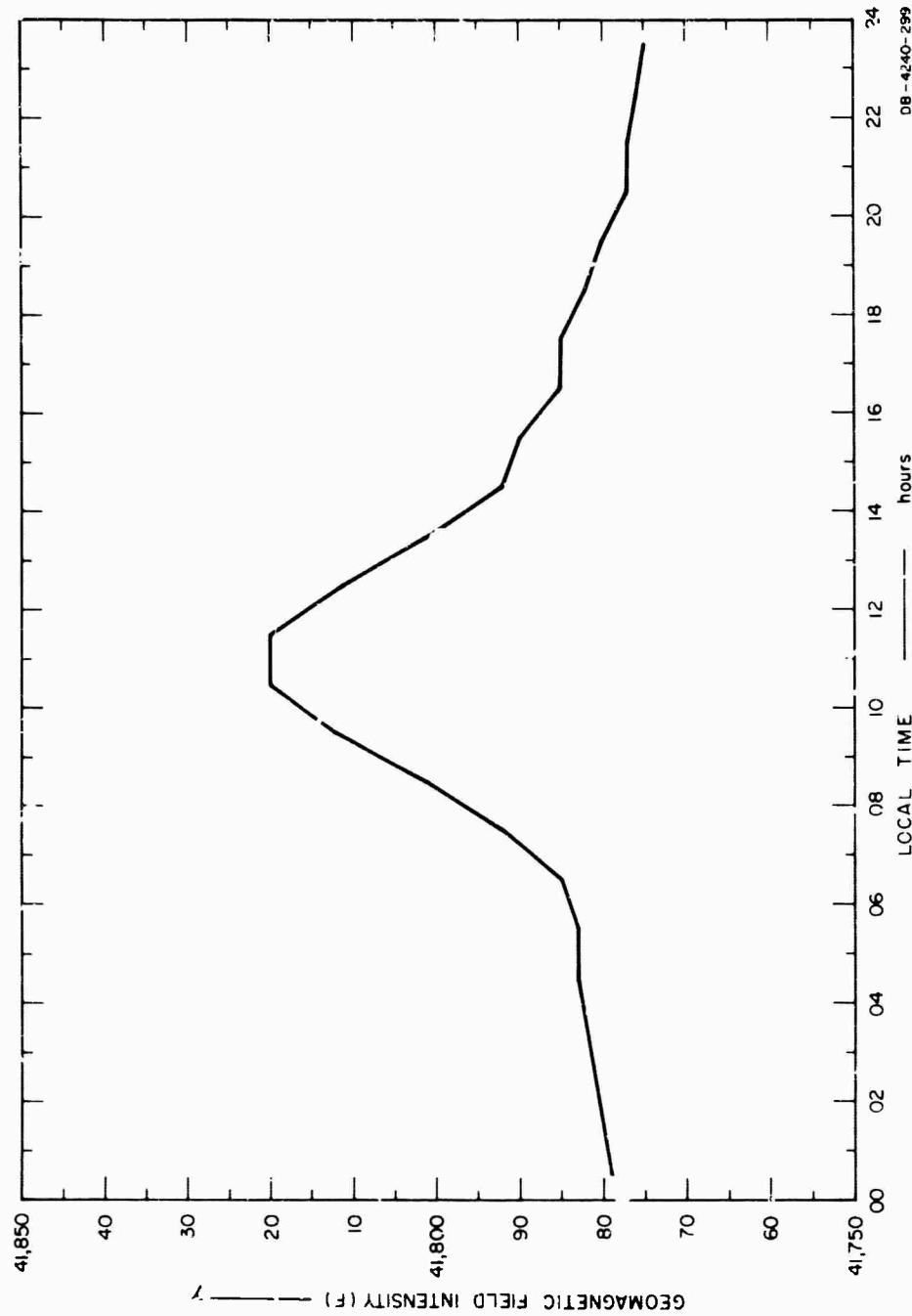


FIG. 2 MONTHLY MEAN TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK —
FEBRUARY 1966

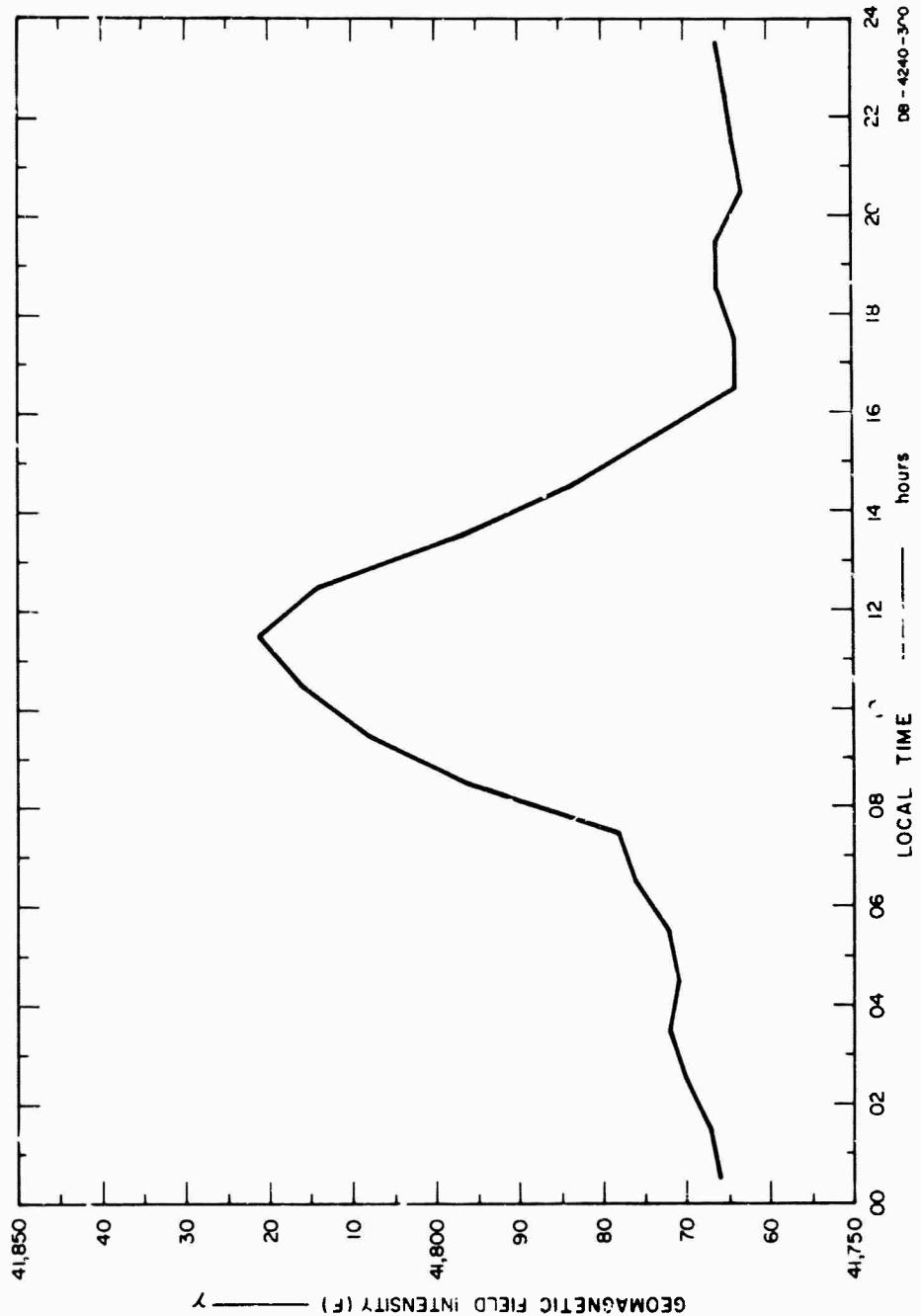


FIG. 3 MONTHLY MEAN TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK — MARCH 1966

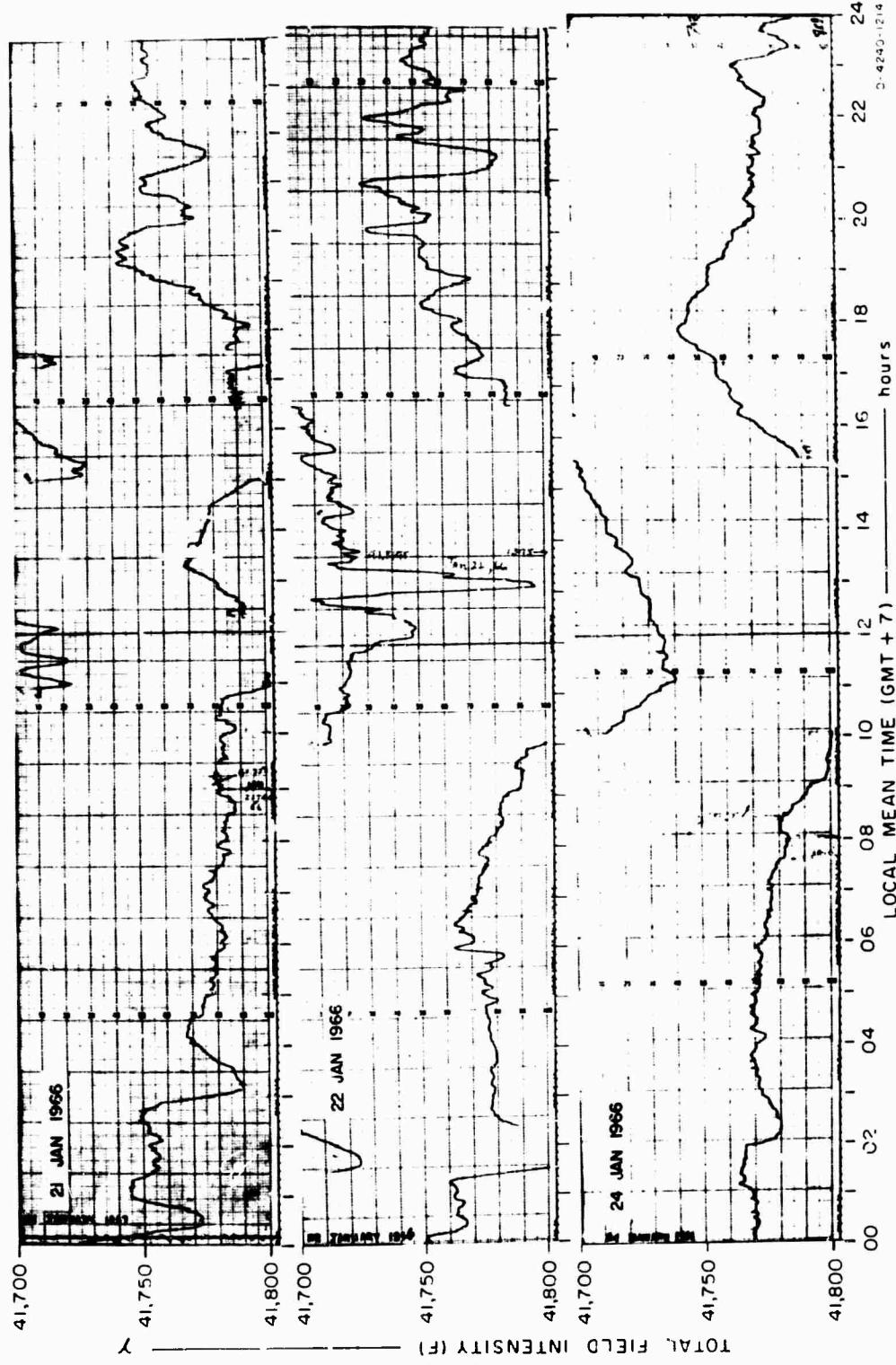


FIG. 4 MAGNETOGRAMS FOR THE THREE MOST DISTURBED DAY; IN JANUARY 1966 (21st, 22nd, and 24th)

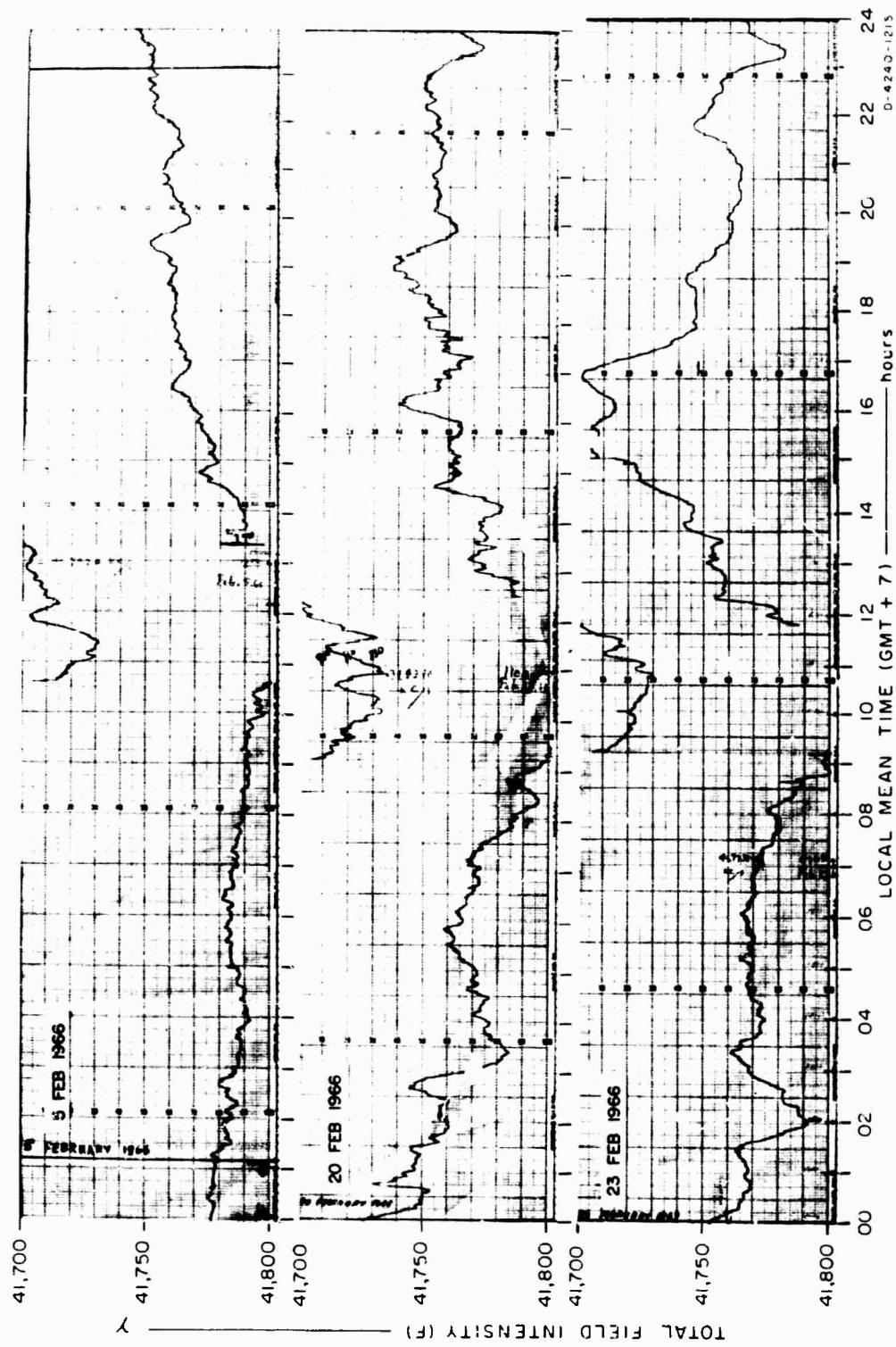


FIG. 5 MAGNETograms FOR THE THREE MOST DISTURBED DAYS IN FEBRUARY 1966 (5th, 20th, and 23rd)

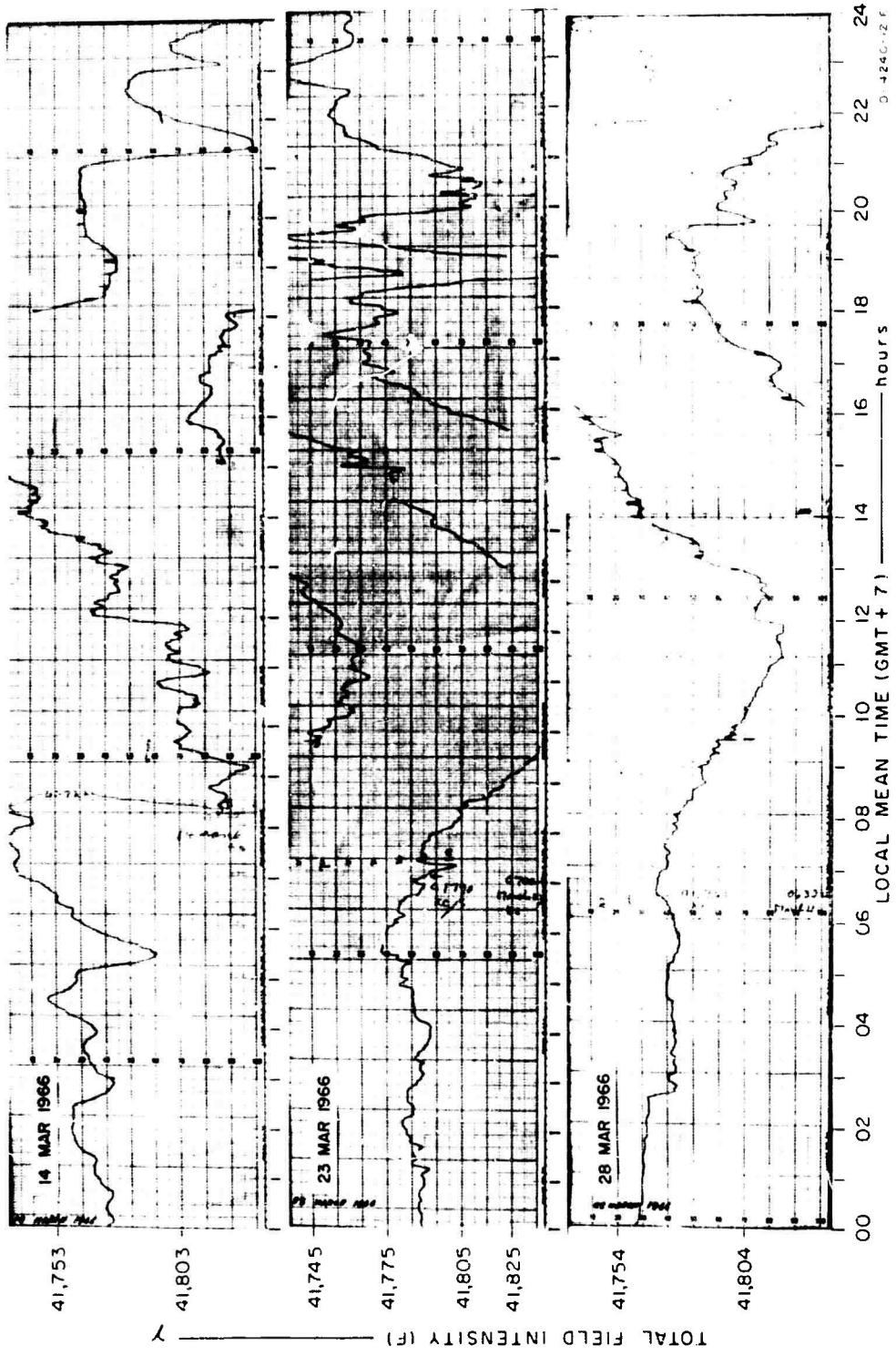


FIG. 6 MAGNETOGRAMS FOR THE THREE MOST DISTURBED DAYS IN MARCH 1966 (14th, 23rd, and 28th)

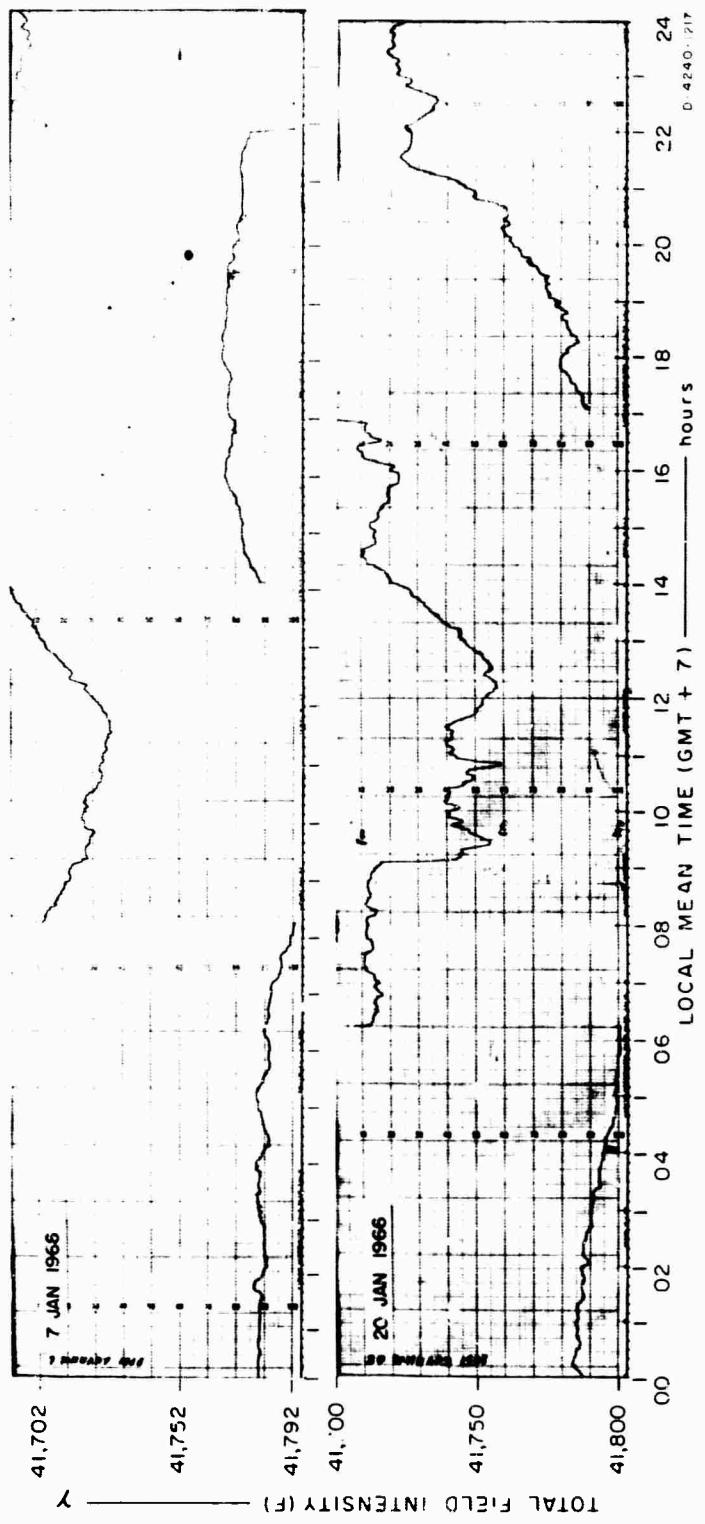


FIG. 7 MAGNETOGRAMS FOR DAYS OF SUDDEN COMMENCEMENTS JANUARY 1966 (7th and 20th)

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14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Magnetometer						
Total field intensity						
Rubidium vapor						
Magnetograms on disturbed days						
Bangkok, Thailand						